

1. Describe the practice proposed for recognition, and list its objectives. Detail how the practice is innovative, how it promotes high student achievement and how it can be replicated.

Our Weather Wizards program is designed for grades one through five, but can be easily duplicated in any school where administrators, parent volunteers and teachers work together. The program focuses on using the weather to contribute to high student achievement in all content areas. The entire school community is involved in many aspects of the project. Students and their parents are introduced to many basic and complicated concepts of weather predicting through a Family Weather Wizard Weekend. Families are rotated through various classrooms where a different weather concept is examined using easy to obtain materials. Instructors in each room are trained before this day and practice the experiments to clarify their own understanding. The instructors in each classroom are made up of a team of students, teachers and parents. Each family is given a booklet outlining their schedule and copies of information and reporting data sheets for each demonstration or experiment.

Once students have been exposed to basic weather concepts they begin the process of early morning weather reporting using the school's weather station. The students are rotated throughout the year so everyone gets a chance to do early morning reporting at least twice during the year. Parents are encouraged to attend the early morning reporting. A group of parent volunteers are trained in the reporting process, using the on-line services and e-mailing the results to the National Weather Service and television news programs. Schools without a formal weather station can set up basic weather instruments to collect data. Reporting of the data is listed daily on a centrally located bulletin board. Records are kept for monthly math projects and prediction checking. Comparisons are done examine student predictions to local weather services. Additional projects in all content areas are done with classroom teachers to link the project to the curriculums.

The project has a number of objectives. These include but are not limited to:

- To link the school community by directly involving parents in the educational process with students and teachers.
- To incorporate higher order thinking skills in the process of weather prediction.
- To learn how to collect data, analyze data and process data into a form easy for everyone to understand.
- To link math, science, language arts, and technology in the reporting process.
- To use history, reading, and library skills to research past weather events and how they effected various societies and/or communities.
- To have students and their families better understand the problems of pollution and its effect on our global weather.

Weather concepts are more than just recording temperature, wind direction and cloud types. Students and their families learn about temperature inversions, warm and cold fronts, barometric readings, compass directions in degrees, degree days cooling and warming, conversion of data into the metric system, air masses, Coriolis Effect, wind chill, the relationship between temperature and air pressure, hygrometers, and the complete water cycle. Many of these are concepts are difficult to understand for students in grades one through five as well as many adults.

2. Describe the educational needs of students that the practice addresses and how they were identified. List the Core Curriculum Content and Cross-Content Workplace Readiness Standards addressed by the practice and describe how the practice addresses the standards.

The program addresses many student educational needs. One of the most important is that the project assists students with the workplace readiness standards. The building administrator and a group of parent volunteers worked together to outline the objectives of the program based on the consensus of the group. The group identified the needs of the families and students as well as worked out suggestions and strategies of how teachers could incorporate the project into all content areas. This group met over a three month period and continues to meet to discuss progress and addition ideas. It scans workplace competencies where effective workers can productively use resources, interpersonal skills, information, systems and technology. In this project students must use interpersonal skills to gather information, analyze the data, reach a consensus and make a prediction. They have to maintain files, organize data and communicate information not only to other students, but also to the entire school community and local weather bureaus. They learn how to change predictions and improve their system of analysis. They must troubleshoot equipment, select appropriate equipment for each type of data and use computers/technology to communicate that data throughout the school, district, local community and metropolitan area. They must use higher order thinking skills, reasoning abilities, and decision methods to work together to make predictions and solve the daily problems related to weather.

Students scan the foundation skills needed by competent workers in the high-performance workplace and incorporate all basic skills in their research, reading, writing, and mathematics. They must be able to effectively communicate with parent volunteers their predictions by speaking and listening to argue and decide upon a daily prediction consensus by the group. They must be able to reason and solve the problem. It cannot be left unresolved with no weather prediction. Students and their families must demonstrate personal qualities, responsibility and integrity in the early morning hours of the day to show up and make these reports well before school starts. Self-management skills are reinforced in the daily record keeping and reporting. Students must rely on each other for information. They must learn to trust one another in accurate data collection.

The project addresses numerous areas within many other content standards. These include but are not limited to the following in language arts; (3.5) students learn how to view nontextual information; (3.3) students will write in clear, concise, organized language that varies in content and form, (3.1 and 3.2) students will speak and listen for a variety of real purposes. Students address these standards in all of their reporting and data collection. In mathematics, the standards covered by the project include 4.1 through 4.14. The data collection is almost all numerical. Students must use the data to solve problems, make predictions and organize data into a useable form. Science standards include 5.2, 5.4, 5.5, 5.9, 5.10, and 5.12. Students are continually examining scientific principles, strengthening problem-solving skills, and using science to make accurate predications. Social studies standards include 6.7 and 6.9. Students must understand geography, the environment and society, and link these principles to global weather. Our district is just beginning to incorporate world languages into the curriculum. Students will learn about weather and its relationship and effect on various cultures studied in the world language programs as well as basic weather vocabulary in that language.

3. Document the assessment measures used to determine the extent to which the objectives of the practice have been met.

Assessment measures vary as the year and project progresses. All assessment involves active student participation. The use of family weather booklets during the Weather Wizard Weekend allows the family to reflect on the data and information regarding the project. Parents must work with their children and teachers to accomplish this objective.

Daily record keeping, logging data in the computer, and posting data and predication on the bulletin board is on going. The log book is kept throughout the entire year and then placed in the school library for future reference in years to come so that students can begin to keep weekly, monthly and yearly data averages, record highs and lows and other important information. The computer becomes more important as the student progresses through the grade levels. Spreadsheets are created to organize data and graphing skills are used with non-textual displays. The school's weather bulletin board is used daily to reinforce accurate reporting and predictions.

Student use of higher order thinking skills and problem solving is done to predict the weather for the next day and do an extended forecast. Self-assessment is done when students compare their predications and forecasts to the actual weather. They also compare their predications and forecasts to local media newscasts. Averages of correct predictions are keep and recorded.

Linking of the project to the core curriculum standards is done throughout the year. Students continually use math to process information. Assessment in math occurs in the classroom as well as in student's demonstrating the ability to make predictions, find and report over all weekly and monthly data such as average rainfall or temperatures, and use data with the computer and spreadsheets. Science concepts are needed and must be understood to make accurate predictions. Students not making accurate predications do not demonstrate the scientific concepts being taught. Students demonstrate library skills, social studies and reading skills to write reports and link weather and climate to world communities. Students link the project to many studies done within each classroom at each grade level and incorporate it into reports and projects. We do not do formal testing directly with this project. All assessment is involves active student participation with finished projects, reports, displays and computer use to demonstrate acquisition of skills and knowledge.